

An Original Essay on the  
 causes, diagnostics and cure of Biliary  
 Calculi. submitted to the examina-  
 tion of the Medical Professors of the  
 University of Pennsylvania

By H. C. Hays  
 of Boston & Philadelphia

Nothing additional from the  
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The subject I have chosen for  
my inaugural Essay is Biliary Concretions.  
The obscurity in which it is enveloped  
will, no doubt, induce many to conclude  
that I have been too sanguine in attempt-  
ing to treat on a subject so intricate; and  
one that has baffled the most celebrated  
physicians and physiologists to unfold.

But, its great importance to the physician  
in a practical point of view will be ample  
apology for the attempt. — If I should  
have the good fortune to throw a little  
light on it, the praise will be the greater.  
If not, I can offer the same plea that many  
others have done, "the extreme difficulty of  
the subject."

The liver is the largest glandular viscus  
in the human body. — Passing by the  
other numerous functions that have been  
ascribed to it, I shall confine myself  
to that very important one, the secreting  
the bile; — its properties; — the action  
of different agents on it, and its conse-  
quent parts.

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There is more of the secreted fluids that  
has engaged so much of the attention of the  
anatomists and Physiologists as the bile, both  
on account of its importance in the econ-  
omic economy as well as the various and  
complicated diseases which a change of it  
either in quantity, quality or consistence  
produces.

Healthy bile when first secreted is a mild  
bland fluid, without much taste, odour  
or colour: but as it is an established law,  
that in proportion as efforts proceed from  
their cause, they lose their identity, so the  
bile becomes more bitter, viscid and stain-  
-ing and of a darker colour, as it  
progresses towards the excretory ducts, and  
it is detained in them, or in the gall blad-  
der.

The bile is found by analysis  
to contain water, soda, - a few  
nitro-bilious acids, - and some  
albuminous substance, phosphate  
of soda discovered by Redien, and some  
acetate, while others deny the existence  
of iron in the bile.

Nothing further need be said to prove the  
existence of water than that it is the el-  
ement of all its motions and that the  
consistence, taste, and colour of the bile  
are much influenced by it.

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The alkaline or saponaceous property of the bile is clearly shown by these facts. 1st. It forms a mixture of viscid gums & it mixes well with water; it is for this greatly that it is so much sought for, and used by Fullers in scouring clothes and taking out greasy stains. In this case the alkali of the bile unites with the oil or grease and forms a soap which is soluble in water.

2. I determined which of the alkalies was contained in the bile. I instituted the following experiments.

1st. In two ounces of beef gall, I poured two ounces of sulphuric acid; a slight effervescence took place, with a disengagement of gas. To this, I added two ounces of water and stirring up the mass, I placed it in a soap-plate on a stove to evaporate; at the end of three days the residue was covered with globules of Glass-bottle.

2. I poured in one ounce of calf bile one ounce of nitric acid: the bile did not saponify as I expected it would; but its colour was instantaneously changed to a white. There was some effervescence. I put the whole into a flask and applied the heat of a lamp; till the fluid parts were evaporated. I let it stand undisturbed for twenty four hours when the

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oil when was acted with small quantities of  
lucid sharp and cool taste and resembled  
nitric.

3 On this residuum I poured some  
acetic acid, a violent effervescence ensued  
with a quantity of a dark yellow colour-  
ed gas: and the sharp and pungent  
taste of the residuum was converted  
into a saline taste. These experiments  
prove that the alkali is soda. Since I made  
the above experiments, I found that the exis-  
tence of soda was also proven by Cattel.  
These arguments that were adduced in sup-  
port of the supposition of properties will  
suffice to prove the existence of oil also  
in the bile. As to form a soap, oil  
must be united to an alkali.

The Albumen is seen by the curdles formed  
in the bile. It is coagulated by the mucus.  
Cattel obtained albumen from it by  
means of the sulphuric acid. The  
Albumen diminish the viscosity of the bile and  
renders it more fluid. Phosphorus, Strontian  
and Lime combine with the oil and form  
an insoluble earthy salt. Acids both  
vegetable and mineral at first coagulate,  
but afterwards, on the quantity of acid being  
increased, decompose the bile. — acted  
by combining with the soda, the oil and

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1. It is to be observed that the colour of the  
crystals is not of a uniform white, but  
varies from a pale yellow to a deep  
brown. The colour is concentrated by  
which the crystal shape is better marked  
but the crystals are not more solid. The crystals  
be separated in a white - concrete form  
be conceived to be the crystalline or  
of boiling water.

[illegible]

I have got 3, mention that I like  
it a show, and find out if my little  
pocket books, & write for instance, how  
much you are getting of them, until  
you cannot get more: I will

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It is not at all  
to secure and otherwise and  
better shall in the future. Thus  
enough otherwise with his friends  
small parts of the body but part  
in the secretory organs where it is not  
on greater escape after the secretory  
I have in fact Calabash. The 1st 10th  
day, fragments, of plan, uncertainty.  
They have sometimes been found  
and been used. They are common  
than to find them in the parts of  
plants. They have also been found in  
in the stomach.

[illegible]

Y. Geo. Co. cannot say that your Govt  
if it had to not changed in the state  
to a particular one in structure or in  
government will ensure, as it is  
not by our constitutions and your Govt  
Section 10, and that the Govt of the  
state and your Govt will not be able to



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more certainly must it be said that  
of gall bladders never by one found  
the bile which is secreted from a bladder  
different from any other in the body but  
as to the nature of its accumulation, &  
showings of its accumulation and its effect  
I am not sure I can generally believe that  
all the physical signs of the presence of bile  
in the stomach of the liver are  
the blood of the liver is not a  
part secreted from the liver, but is  
this at least agrees with the other  
of probability from the large size of the  
in the folds and in other circumstances of  
blood secretion and also from the  
circumstances and nature of the bile. &  
the collection of the blood of the  
part will be increased, but here the  
of the whole system. When a disease  
occurs of the liver, the function of  
the liver is entirely lost, in some cases  
the liver is so affected by disease and  
shows of the liver are all concerned  
by disease as evidence of liver disease.  
By the way, it is true the secretion of  
bile is by the liver and maintaining its  
time and thus producing various pecu-  
liarities and generating various diseases  
From a dissection of the attached  
(in some of the liver of the liver)

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of 10/10/1851. I have been  
very anxious to find out the  
at least in the length of time  
are not at all the same. I have  
a few articles against each other. I  
for think it would be to mention all  
articles mentioned by January 10. The  
others as by all interest of the same  
method of proof.

Colombian, the last and commonest of the  
varieties of the species found by the  
various parties. These individuals would not be  
in the highest of the flaps of the l.t. of  
the various parties. It is certainly in the  
flap. The Louisa also is that of the l.t. of  
the parties is changed with those of the  
that from the l.t. of the l.t.

[illegible]

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11. I find that some persons are so  
straight and ingenious themselves perfectly  
sincere. But he forces himself into  
it about respect he enjoys from his  
own relations & a great many with  
himself. But for an answer to the  
length of it I find it is not  
of great resistance the evidence is  
The patient is for some time  
many of the friends and it is often  
I am it is much that finding it  
is attended with the same  
great of nature of straight with  
each were changed of the  
are different in some cases  
are different of death and  
of death of death and  
change into the same  
When the plans of the  
is a person in the  
person at different times. This is  
of the same way from various  
according to the age and the  
culture and the habits of the  
But the plans of education  
is still more uncertain  
changes. For education has been  
found in the Gallatinian



I have been thinking of you very much lately, and  
 wondering how you are getting on. I hope you are  
 well and happy. I have been very busy lately, but  
 I have managed to find some time to write to you.  
 I have been thinking of you very much lately, and  
 wondering how you are getting on. I hope you are  
 well and happy. I have been very busy lately, but  
 I have managed to find some time to write to you.

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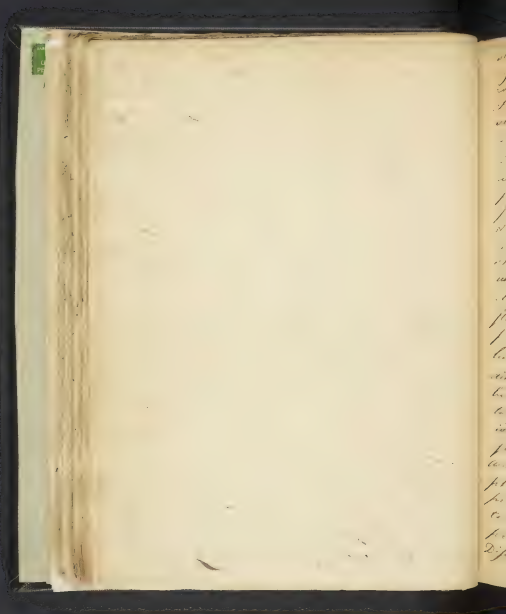


At present I do not think it is  
 so much necessary to be without  
 general external action in such  
 the treatment I have is intended  
 to not only improve, but very improve  
 the the blood I mention is not  
 in the body. I have seen manifest  
 from the use of this in the treatment of  
 the acute. Another remedy says that it  
 is not with the life of an egg in a  
 just in allowing the sperm to be  
 not, but the same time that it is not  
 done. Dr. Dawson recommends other  
 at with the yolk of an egg. The  
 will be. lately been highly recommended.  
 If it does good, it must be by its  
 being properly and not disordered.  
 I found that it is not for each  
 taken from different & by its and it  
 changed the color and in some  
 a little softer - now if this is any  
 used could disfigure them out of the  
 that after giving the rest of the  
 tion, the small portion which  
 arrive at the liver would pass it  
 from a straight and probably  
 of course. A patient of Dr. P. Thomas  
 a very large white by means of hard  
 even both with the best of  
 the patient took 30 drops of

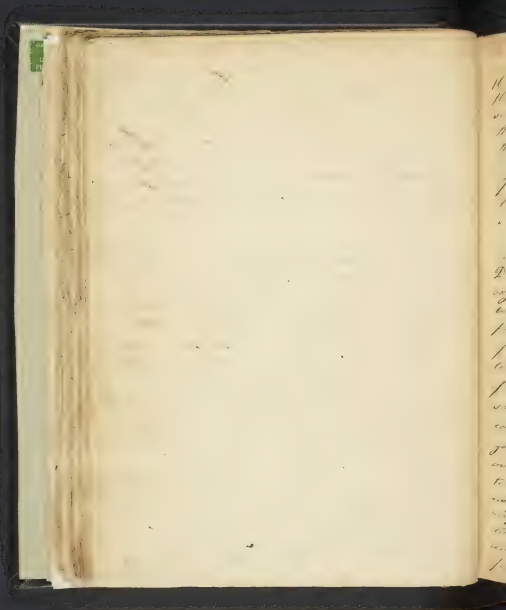
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is soft & the large part of it  
is absorbed perfectly. During Digestion  
most tender part of the true part is not being  
under being, & is absorbed by exciting  
the stomach. The stomach  
contains a large quantity of the  
I have found it desirable  
to eat. This I have seen it too  
without any off and benefit.

As the cause of being retained  
is I have understood it to be a  
I am not able of the stomach. It  
follows that the cause must be  
only and only by exciting the stomach  
to its action. It is of course  
and thus action the stomach to its  
action. With this view a remedy should  
be used and kept up for some  
time at times either with the stomach  
or upper stomach combined with  
the stomach or together. By this means  
the action is kept up and when  
the stomach is the cause, that the  
the villous coat of the stomach is  
covered the action of the stomach  
I see the force is brought out with  
it and the peristaltic motion is not  
lost by its frequency greatly and it



[illegible]



4. this he called for 4 pounds of common salt.  
and expressed the whole to an 100. lbs. of St. for  
16 hours. By repeated digestion with fresh  
flask it became much stronger and more  
similar to the natural gastric juice.

These formula I think are worth trying.  
The Balsam Capivi is much used. But

my former Receipt will be a full compensation  
of equal parts of soda carbonate from  
temperance. Two or three of these pills  
should be taken every day. This I can  
with confidence say is one of the best and  
we have an affection of this nature.

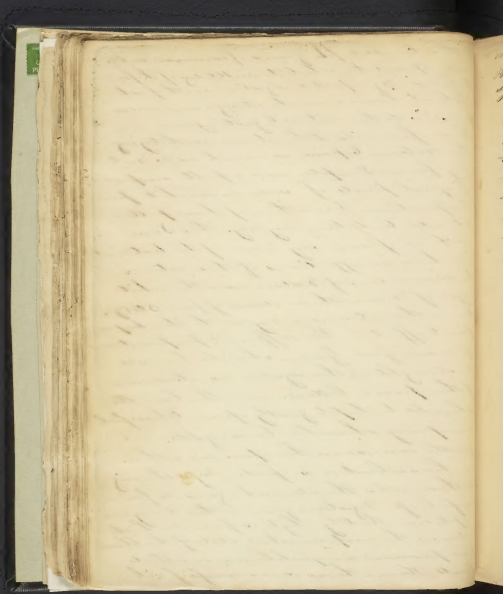
D. Warren son of Boston used the white  
oxygen of Rivermouth in doses of from 3 to 4 grs.  
two or three times a day with the best  
first effect. The different preparations

of iron, from Gaucan. should be used  
to strengthen the system as also some  
of the pure bitters. — The bowels

should be kept gently open. Cheerful  
company should be sought and  
gentle exercise in the open air either

on horseback or on foot. By adhering  
to these rules the stomach regains its former

usefulness. Digestion goes on without any extra  
exertion. Health & life is secured which  
restores the unimpaired state of the blood  
and processes an equilibrium in all its  
parts. Hence there is no escape of oil





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abundant to form living concretions  
but perfect life is formed, and the whole  
system seems to be regenerated.

I commenced making some experiments  
on the blood of the Venus-frogs in order  
to ascertain whether there was any  
material difference between it and the  
other venous blood. I have not progressed  
sufficiently as yet, to enable me to  
lay them before you in this affair: but  
I shall prosecute them further, and  
inform you of the results.

P

Dec 18  
Dec 19

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